

B. Amendment to the Claims

Please cancel claims 1-8 and 10-15 without prejudice or disclaimer.

Please amend claims 24, 25 and 27 as follows. A listing of all claims is provided.

1-15. (Cancelled)

16. (Previously Presented) A DNA array substrate for screening variation in a portion of a nucleic acid comprising:

a first group of probes, each probe having a base sequence that hybridizes with a wild-type sequence of the portion to give a strong signal, and

a second group of probes, each probe having a base sequence that is expected to hybridize with a gene variant but not with the wild-type sequence to give a strong signal;

wherein each probe is fixed as a separate probe spot on a substrate to form at least two separate regions of probe spots selected from:

a first region containing probes of the first group,

a second region containing probes of the second group, each of which provides a weaker signal than the probes of the first region on reaction with the wild-type sequence, and

a third region containing probes of the second group, each of which provides no signal on reaction with the wild-type sequence,

wherein the probe spots are grouped such that each one of the regions contains probes not found in other regions.

17. (Original) The DNA array substrate according to claim 16, wherein the signal is fluorescence.

18. (Original) The DNA array substrate according to claim 16, wherein the signal is chemical luminescence.

19. (Cancelled)

20. (Previously Presented) The DNA array substrate according to claim 16, wherein the separate regions are arranged on the substrate in order of signal intensity obtainable by reacting with the wild-type sequence along a direction of a detection.

21. (Previously Presented) The DNA array substrate according to claim 16, wherein a length of the probes is 8 to 30 nucleotides.

22. (Previously Presented) The DNA array substrate according to claim 21, wherein the length of the probes is 12 to 25 nucleotides.

23. (Original) A system for detecting variation comprising a DNA array substrate according to claim 16 and a signal measuring apparatus which measures signals from separate regions of the DNA array substrate.

24. (Currently Amended) A method for detecting the presence of a target nucleic acid in a sample using an array substrate having plural probe spots arranged thereon to form an array, wherein said probe spots are arranged into groups such that each group contains probes not found in other groups, the method comprising the steps of:

a) measuring a total signal intensity of a plurality of [[the]] probe spots in one group integrally wherein the probes are in a hybridized state;

b) preparing a histogram of the total signal intensities obtained by repeating the step a) for the remaining [[spots]] groups; and

c) determining the presence of the target nucleic acid on the basis of the histogram pattern.

25. (Currently Amended) A method for detecting the presence of a target nucleic acid in a sample using an array substrate having plural probe spots, wherein said probe spots are arranged into groups such that each group contains probes not found in other groups, and the spots are grouped into two or more groups of two or more spots, the method comprising:

a) measuring a total intensity of signals emitted from the probes ~~[[for]]~~ in each group wherein the probes are in a hybridized state;

b) preparing a histogram of signal intensities of the groups to obtain a pattern; and

c) determining the presence of the target nucleic acid on the basis of the histogram pattern.

26. (Previously Presented) The method according to claim 25, wherein the groups comprise at least a first group and a second group, the signal intensity of the first group is strongest in hybridization with a first target nucleic acid, and the signal intensity of the second group is strongest in hybridization with a second target nucleic acid.

27. (Currently Amended) An array substrate for determining the presence or absence of a target nucleic acid in a sample, the array substrate comprising:

a substrate;

probe molecules; and

a plurality of spots of ~~probes~~ probe molecules arranged on the substrate in an array form,

wherein the probe molecules are the same in one probe spot and different between probe spots, and the probe spots are divided into plural regions, grouped such that each region contains ~~probes~~ probe molecules not found in other regions, and each region corresponds to one of target nucleic acids different in their sequence.

28. (Previously Presented) An array substrate for determining the presence of at least one of a first target nucleic acid and a second target nucleic acid in a sample, the array substrate comprising:

- a substrate;
- probe molecules; and
- a plurality of spots of probes arranged on the substrate in an array form,

wherein the probe molecules are the same in one probe spot and different between probe spots, grouped such that each region contains probes not found in other regions, and the probe spots are grouped into groups of at least two or more probe spots, the first group is expected to give a stronger integral signal intensity in hybridization with a first target nucleic acid than with a second target nucleic acid, and the second group is expected to give a stronger integral signal intensity in hybridization with the second target nucleic acid than with the first target nucleic acid.